

1.022.012



PATENT SPECIFICATION

DRAWINGS ATTACHED

1.022.012

Date of filing Complete Specification: Sept. 4, 1964.

Application Date: Sept. 25, 1963.

No. 37682/63.

Complete Specification Published: March 9, 1966.

© Crown Copyright 1966.

Index at acceptance:—F2 V(D15, E1E, M1E)

Int. Cl.:—F 06 k

COMPLETE SPECIFICATION

Improvements in or relating to Fluid Control Valves

I, DOUGLAS NORMAN MANTON, a British subject, of 235 Ulverley Green Road, Olton, Solihull, in the County of Warwick, do hereby declare the invention, for which I pray that a Patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to fluid control valves of the kind which include a rotary valve member mounted in a valve body such as are used, for example, for controlling the rate of flow of fluid along a pipeline.

It is an object of the present invention to provide a new or improved form of such a valve which is of simple construction and which can be easily assembled and dismantled.

In accordance with the present invention I provide a valve of the kind specified in which the valve body includes a tubular member having diametrically opposed ports which communicate with fluid supply and delivery pipes, a pair of clamping plates, one at each end of said tubular member and means for urging the clamping plates into engagement with the ends of the tubular member and in which the valve member includes a sphere having diametrically opposed inlet and outlet ports connected by a through passage which can be brought into or out of register with the ports in the tubular member and a valve stem extending radially of the sphere and passing through an aperture in one of the clamping plates, sealing means for engagement with the valve member being associated with at least one of the ports in the tubular member.

The fluid supply and delivery pipes are conveniently formed with flanges constructed in accordance with the invention described and claimed in British Patent Specification No. 838,798 and the rotary valve member may be constructed in accordance with the invention set forth in my co-pending Applica-

tion No. 34913/62 (Serial 1022011).

The invention will now be described by way of example with reference to the accompanying drawings in which:—

FIGURE 1 is a sectional view of the valve, and

FIGURE 2 is a view of the valve shown in Figure 1 in the direction indicated by the arrow.

As shown in the drawings the valve includes a valve body and a rotary valve member. The valve body consists of a tubular member 10 having a pair of diametrically opposed ports 12 and 14 which communicate respectively with a fluid supply pipe 16 and a delivery pipe 18 both of which are welded to the tubular member 10. The pipes 16 and 18 are formed of corrosion-resistant material and are formed with flanges of less expensive material for connection to a pipe line.

The end of the delivery pipe 18 which is secured to the tubular member 10 is formed so as to provide a shoulder 22 and a tapered portion 24. A sealing member 26 rests against this shoulder 22, is held in position by means of a retaining ring 28 and is strengthened by means of a reinforcing member 30. The sealing member 26 is formed of either rubber or a flexible synthetic polymeric material such as polytetrafluoroethylene. The sealing member includes a portion 32 which contacts the outer surface of the rotary valve member. The provision of the tapered portion 24 on the end of the delivery pipe 18 facilitates positioning of the sealing member.

The ends of the tubular member 10 are closed by means of a pair of square clamping plates 34 and 36 each of which is formed with a central circular portion of greater thickness than the remainder of the plate for location in the end of the tubular member 10. The central portion of each plate is surrounded by a groove which receives a sealing ring 38 to prevent escape of fluid from the valve body.

[Price 4s. 6d.]

At each corner of each clamping plate there is provided an opening. A bolt 40 passes through the registering openings in the clamping plates and a nut 42 is tightened onto the end of each bolt to secure the clamping plates firmly to the tubular member 10.

The valve member includes a sphere 44 having diametrically opposed inlet and outlet ports 46 and 48 interconnected by a cylindrical member 50 joined in a fluid-tight manner to the sphere around the peripheries of the inlet and outlet ports 46 and 48. A pair of hollow valve stems 52 and 54 extend radially of the sphere 44 and pass through openings in the clamping plates 34 and 36. An O-ring 56 surrounds each valve stem and one valve stem 52 is provided with an operating handle 58, a pair of stops 60 and 62 being provided on clamping plate 34 for limiting the degree of rotation of the valve member. In one limiting position the outlet port 48 of the valve member is in register with the delivery port 14 of the tubular member 10 and in the other limiting position is completely out of register therewith.

If desired, sealing means may be provided in the other port 12 of the tubular member 10 to prevent entry of fluid into the space between the sphere 44 and the tubular member 10. Where a pair of sealing means are provided it has been found convenient to form the valve body as a pair of tubular members disposed one within the other, the outer tubular member being connected to the supply and delivery pipes and the inner tubular member being provided with sealing means.

To assemble the valve shown in the drawings the sealing means are placed in position in the tubular member 10, the rotary valve member is then inserted in the tubular member, the two clamping plates 34 and 36 are then placed in position, the operating handle 58 is secured to the valve stem 52 and the clamping plates tightened together by means of the nuts and bolts. The hollow valve stems 52 and 54 permit the introduction of either an electrical heating element or a temperature

controlling fluid into the space between the sphere 44 and the cylindrical member 50 of the valve member.

WHAT I CLAIM IS:—

1. A valve of the kind specified in which the valve body includes a tubular member having diametrically opposed ports which communicate with fluid supply and delivery pipes, a pair of clamping plates, one at each end of said tubular member and means for urging the clamping plates into engagement with the ends of the tubular member and in which the valve member includes a sphere having diametrically opposed inlet and outlet ports connected by a through passage which can be brought into or out of register with the ports in the tubular member and a valve stem extending radially of the sphere and passing through an aperture in one of the clamping plates, sealing means for engagement with the valve member being associated with at least one of the ports in the tubular member.

2. A valve as claimed in Claim 1 in which the sealing means includes an annular sealing member of rubber or a flexible synthetic polymeric material, a retaining ring and reinforcing member.

3. A valve as claimed in Claim 2 in which the clamping plates are provided with means whereby they can be readily aligned with the ends of the tubular member.

4. A valve as claimed in Claim 3 which includes a plurality of nuts and bolts for urging the two clamping plates towards one another into fluid-tight engagement with the ends of the tubular member.

5. A valve which includes a rotary valve member in a valve body substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

FORRESTER, KETLEY & CO.,

Chartered Patent Agents,
Central House, 75, New Street,
Birmingham 2 and
Jessel Chambers, 88/90 Chancery Lane,
London, W.C.2.

BEST AVAILABLE COPY

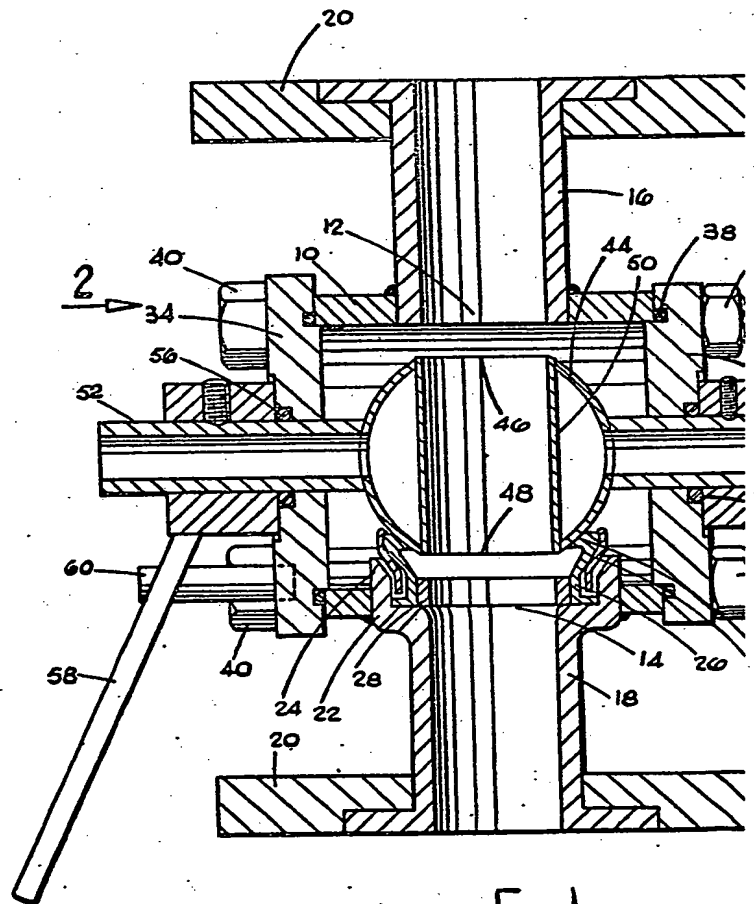


Fig. 1.

BEST AVAILABLE COPY

1022012

COMPLETE SPECIFICATION

2 SHEETS

This drawing is a reproduction of
the Original on a reduced scale
Sheets 1 & 2

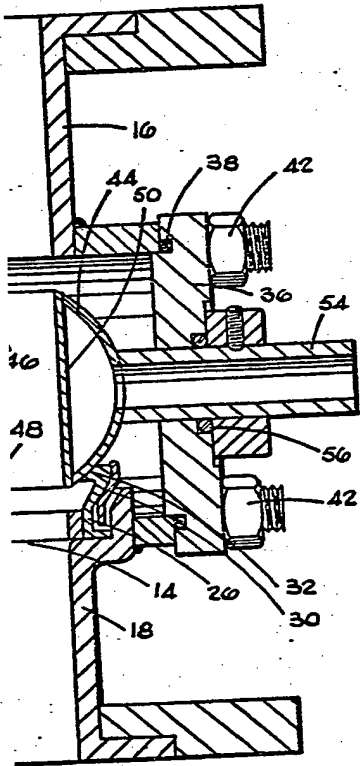


Fig. 1.

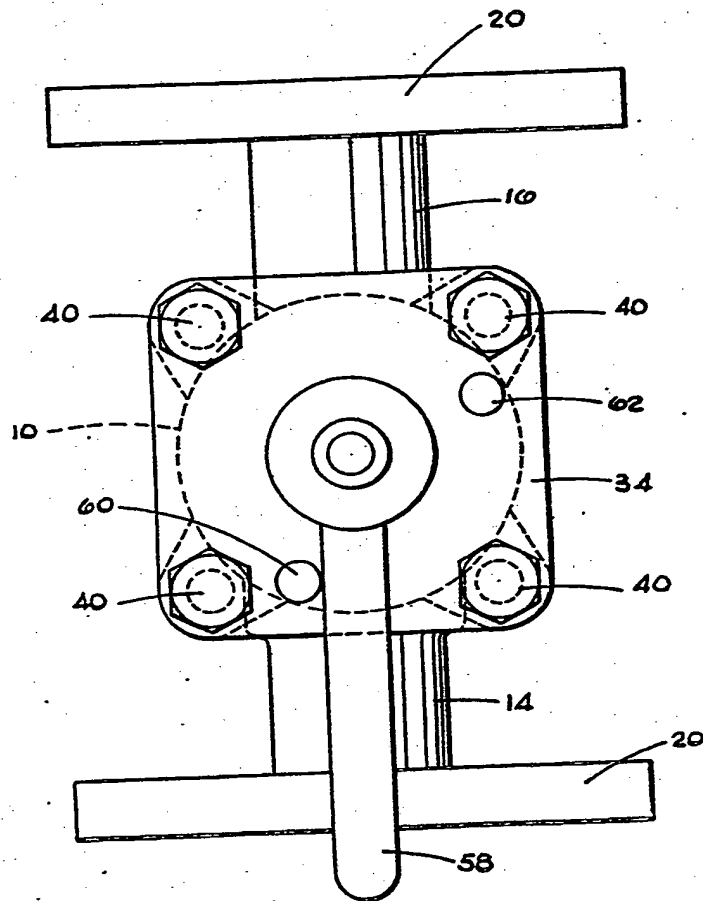


Fig. 2.

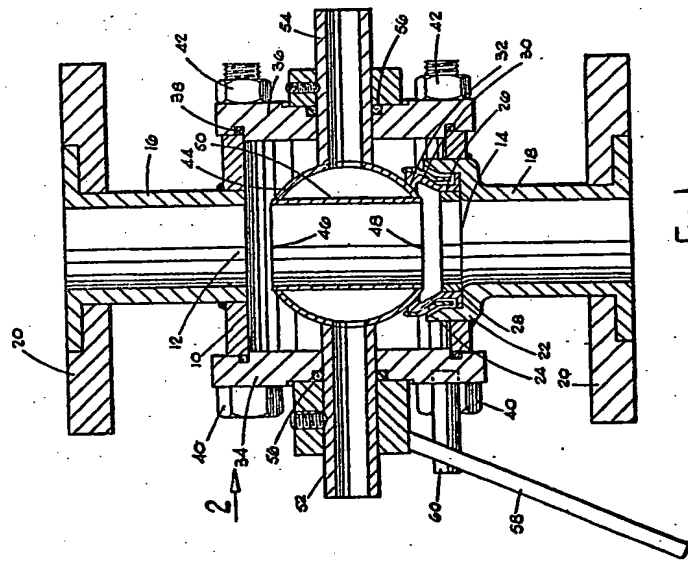


Fig. 1.

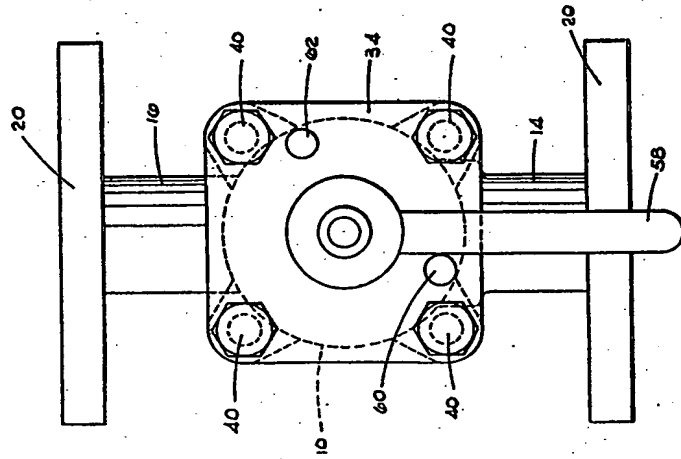


Fig. 2.

THIS PAGE BLANK (USPTO)